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Recurrent Infiltrations of Lung.—There is much evidence to indicate that the vascular apparatus plays a basic rôle in the production of altered tissue reactivity in man. In the allergic state, the antigen-antibody interaction is considered to result in the liberation of a histamine-like substance which leads to increased vascular permeability and consequent oedema. Since the blood vessels appear to be the primary site of the allergic reaction, any organ in the body may become a shock tissue if the blood vessels supplying it have become sensitized. The author reports a study of the forms of vascular sensitization manifested in a group of 8 patients in whom, with a single exception, asthma was the cardinal symptom. The asthma was but one of the expressions of underlying vascular allergy which manifested itself in involvement of other tissues subject to the same allergenic stimulation. There was a family history of allergy in 2 cases and a personal history in 4 cases. Clinically significant reactions to foods and pollens were found in 3 patients. The major aetiological rôle in the causation of the presenting symptoms in the majority of the cases was attributed to bacterial allergy arising from chronically infected sinuses. Coincidentally with the asthmatic attacks there appeared interstitial pulmonary infiltrations and pleural effusions of eosinophils in 6 patients. These signs were reversible and disappeared with the termination of the asthmatic seizures only to recur with a flare-up of the asthma. The pulmonary lesions were insidious in onset, migratory, miliary and interstitial, and occasionally exudative simulating tuberculosis. Temperatures ranged up to 102° and there were cough, asthma, and eosinophils in the sputum. Many of the pulmonary lesions could be detected only by roentgen examination. Similar lesions in the lungs without the presence of asthma have been reported by others, indicating that allergic reactions may occur in the lungs without the production of bronchial spasm. Histological sections of the lungs in one case disclosed thickening of the small vessels. In the one patient without asthma in this series, in addition to the pleuropulmonary infiltrations there were swelling of the elbow and a haemorrhagic necrotic lesion in Scarpa's triangle; all the lesions disappeared with recovery of the patient within a period of three months. Other lesions which occurred in this series were urticaria, acute pericarditis, transitory polyarthritis, eosinophilic peritonitis, polyneuritis and various cutaneous lesions, such as purpura and subcutaneous nodules. Biopsy of one of these nodules disclosed perivascular eosinophilic infiltration in some areas, similar to lesions in other cases in this series; lesions typical of periarteritis nodosa were seen in other sections of this biopsy. Electrocardiographic abnormalities were seen in 6 cases. These consisted of abnormalities in the deflection and amplitude of the P-waves, T-waves and QRS-complexes. These changes were for the most part reversible. Two patients developed irreversible electrocardiographic changes and adhesive pericarditis and presented the clinical picture of constrictive

pericarditis. Bacterial studies of the sputum in these patients disclosed a variable and nonspecific flora. Blood counts ranged from 7,000 to 40,000 leucocytes with eosinophils ranging from 7 to 84 per cent. Blood cultures, carried out in five cases, were all sterile. In evaluating the aetiological factors in these cases, bacterial and virus allergy must be considered in addition to foods and pollens. Treatment must be individualized and, depending upon the severity of the illness, will consist of treatment of the sinuses, specific desensitization, use of vaccines and general symptomatic therapy. The data obtained in the study of this series strongly supports the view that periarteritis nodosa represents a hyperergic vascular response and represents the ultimate stage of many of the lesions seen in this series. These earlier lesions may be considered as *formes frustes* or potential types of periarteritis nodosa.—*Vascular Allergy, J. Harkavy, Arch. Int. Med., April, 1941, 67: 709.*—(*H. R. N.*)

Roentgen Treatment of Lobar Pneumonia.—Roentgen therapy was employed to the exclusion of specific drugs or sera in the treatment of 34 cases of lobar pneumonia with a resulting mortality of 6.2 per cent (2 deaths). The technical factors were: 130 kv., 5 ms., 30 cm. skin target distance, 3 mm. of aluminum filtration, 200 r. at each treatment through one portal for adults, 150 r. for children. That portal was used which offered the best approach to the involved area. The first roentgen treatment was given as soon as possible after the diagnosis was made. Suspected cases were admitted directly to the roentgen department where chest roentgenograms were made and material for laboratory studies obtained. Roentgen treatment was then given before moving the patient to the ward and was repeated in twenty-four hours if the favorable response had not occurred within that time. A third treatment was given on the third or fourth day where indicated. All treatments were given in the roentgen department. The favorable response to roentgen treatment was characterized by relief of pain, fall in temperature, dramatic improvement in the patients' general well being, decrease in leukocytosis and resolution of consolidation. The relief of pain usually was noticed within six to twelve hours after the first treatment and was the first indication of improvement. The fall in temperature occurred usually in twelve to thirty-six hours and was of the crisis type. Occasionally the fall was of the lysis type. Recession in temperature was accompanied by a dramatic improvement in the patients' general well being. The initial decrease in leukocytosis occurred generally within a few hours after the fall in temperature, following which the leukocytosis gradually returned to normal. Resolution of consolidated lung tissue, as studied roentgenographically, did not occur until several days after the clinical response. Frequently, in an afebrile patient several days' convalescent a considerable area of consolidation was present on roentgen examination. In one case presenting clinical and roentgen evidence of lobar pneumonia and in which pneumococci were not isolated from the sputum, there was a favorable reaction to therapy. This has also been reported elsewhere in the literature. Five cases, or 15 per cent, required only one treatment, while 75 per cent received 2 treatments. Of the former group all were admitted on or before the second day of the illness, while in the latter only 3 were admitted at this early stage. In the 2 fatal cases, no improvement was present at any time. A poor prognosis is indicated if the favorable response does not occur by the fourth day.—*The Roentgen Treatment of Lobar Pneumonia, E. B. Settle, Am. J. Roentgenol., April, 1941, 45: 591.*—(*W. H. M.*)

Roentgenologic Diagnosis of Acute Bronchiolitis in Infants.—Capillary bronchitis or bronchiolitis is a distinct clinical entity. It frequently complicates bronchitis in infants. The onset of this condition is acute, with fever, rapid and labored breathing, severe cough, moderate prostration and, in most cases, cyanosis. The prostration is not as great as in the common lobular pneumonia of infancy, and the development of symptoms is much less rapid. There are at first sibilant and later subcrepitant râles over the entire chest. There is no evidence of consolidation. Percussion gives exaggerated resonance due to emphysema. Symptoms may increase in severity until

death takes place by the third or fourth day. The roentgen findings consist of an extreme degree of bilateral obstructive emphysema simulating the changes seen in cases of ball-valve foreign body in the trachea. This is associated with or followed by the development of a diffuse miliary bronchopneumonia, more profuse in the mesial and basal portions of the lungs. Fluoroscopy is important in demonstrating absence of normal deflation of the lung with expiration. Four cases are reported in detail with postmortem studies in three.—*Roentgenologic Diagnosis of Acute Bronchiolitis (Capillary Bronchitis) in Infants, L. W. Paul, Am. J. Roentgenol., January, 1941, 45: 41.—(W. H. M.)*

Abscess of Lung.—Pulmonary abscesses, from a surgical standpoint should be properly separated into the simple and complicated stages. The simple abscess includes a single or multilocular cavity without secondary bronchiectasis and is usually of less than six weeks duration. The complicated abscess consists of multiple, isolated daughter abscesses located in a surrounding zone of pneumonitis, which do not connect with the primary cavity. The surrounding pneumonitis may be properly called the "surgical danger zone" for any manipulation, incision or cauterization of this area is attended by alarming complications. Cure of an abscess depends on adequate oxygenation of the cavity and the removal of the cavity contents, the necrotic lung tissue and debris, which prevents solid healing and which is responsible for recurrence. Conservative measures, including supportive therapy, drugs, postural drainage, bronchoscopic aspiration and pneumothorax fail to bring about these changes in the cavity because the draining bronchi are very small. Pulmonary abscesses are peripherally located and symphysis of the pleurae occurs early in the course of the disease. One-stage external drainage of the abscess is therefore feasible, practical and safe. Localization must however be exceedingly accurate. Incision into normal lung tissue or into the surgical danger zone must be avoided. In a series of 63 patients, 35 with simple and 28 with complicated lung abscess, external drainage had an operative mortality rate of 32 per cent and a cure rate of 26 per cent in the complicated cases; an operative mortality of only 6 per cent and a cure rate of 94 per cent in the simple cases. Time is the most important factor in the development of the complicated lung abscess. Lung abscess must be considered a surgical disease. External drainage should be instituted without delay as soon as diagnosis is established and localization agreed on.—*Factors in the Reduction of Mortality from Pulmonary Abscess, R. Overholt & W. R. Rumel, New England J. Med., March, 1941, 224: 441.—(S. T.)*

Bronchomycosis.—A series of 79 cases of bronchomycosis, comprising 16 cases of blastomycosis, 10 cases of actinomycosis, 40 cases of moniliasis, 3 cases of sporotrichosis, 5 cases of aspergillosis, 2 cases of geotrichosis, 1 case of torulosis and 2 cases of coccidioidal granuloma were studied in Durham, N. C. There were 47 males and 32 females. The ages ranged from 4 months to 66 years and the duration of symptoms varied from one month to fifteen years. Twenty-six of the patients are living. Roentgen findings are never typical and may closely resemble several pathological conditions. It is impossible to arrive at a correct interpretation of the roentgenograms of many of these patients without the cooperation of the clinician and a pathologist who is an efficient mycologist. The roentgen appearance in the early stages resembles bronchitis or pneumonitis rather than tuberculosis, but as the fungi give rise to pus formation within the pulmonary alveoli, there is either a resulting bronchiectasis or consolidating masses within the lung structure. The cases with monilia infection seemed to present the most consistent roentgen changes. In the early stages, the lesions were diffuse, with small nodules throughout the entire lung field. In the later stages, the lungs presented a diffuse chronic interstitial fibrosis, extending from the hila throughout the lungs, with less involvement of the apices. This can usually be differentiated from tuberculosis in that the fibrosis is more of a network with heavy beading along these lines. The 2 cases of coccidioidal granuloma were not seen by the writer, but histories and roentgenograms were reviewed by him. The lesions may be cutaneous or

oropharyngeal, with selective lymph node involvement. Mediastinal adenopathy is present in 82 per cent of a series of cases studied in Los Angeles. About 60 per cent of the actinomycosis cases showed pulmonary involvement as well as skeletal changes. The pulmonary lesions are usually pneumonic in type with irregular areas of consolidation which often break down and suppurate, leaving large cavities. It often starts as a central pneumonic process and occasionally extends through the chest wall. The writer's patient with such lesions has been well for nine years. The pulmonary lesions of blastomycosis vary from dense pneumonic masses to a miliary distribution. The roentgen appearance of aspergillosis was consolidation simulating pneumonia. When pulmonary involvement occurs in geotrichosis the roentgen findings resemble chronic tuberculosis with heavy peribronchial infiltration; cavitation is frequent. Sporotrichosis seldom produces pulmonary lesions. In torulosis there is no typical roentgen finding; the lesions are often compatible with tuberculosis except that there is rarely cavitation. No cases of histoplasmosis were observed by the writer, but there are cases reported which show nodular infiltrations and caseating lesions with cavitation. The mere presence of fungi in the sputum does not establish a diagnosis. Many fungi in the sputum are not virulent and not pathogenic. Fungi may be pathogenic but still not the cause of the disease in question.—*The Incidence of Bronchomycosis in the South, R. J. Reeves, Am. J. Roentgenol., April, 1941, 45: 513.*—(*W. H. M.*)

Bronchiectasis.—Most patients with bronchiectasis who develop it before the age of ten die before 40. Fifty per cent of cases date symptoms from an acute inflammation of the upper respiratory passages. The condition may develop from a chronic bronchitis, frequently the result of a chronic sinusitis, lodgment of a foreign body, or, especially in children, atelectasis occurring as a complication of whooping cough, measles or pneumonia. Factors in the pathogenesis are bronchial obstruction, such as tumor, tuberculous lymph nodes, or tuberculous granulation tissue; violent cough distending the bronchi; weakening of the wall by bacterial infection; and traction of fibrotic pulmonary processes on the bronchial walls. Bronchiectasis complicating collapse therapy, especially thoracoplasty, is apparently relatively mild. Organisms cultured from bronchiectatic lesions are *Streptococcus haemolyticus, Micrococcus catarrhalis*, influenza bacillus, spirochetes and fusiform bacilli. The classical picture of profuse expectoration separating into three layers is often absent. Sputum is often scant and not foul. The presenting picture may be merely a recurrent bronchitis or haemoptysis. The left side is more frequently involved than the right due to the better drainage of the right bronchus. It is much more common in males. The vast majority of cases begin in the first two decades. In children, the illness may produce a cough with little constitutional disturbance and may be overlooked. On the other hand, in malnourished children, it may run an acute course. For diagnosis, simple radiography is not very satisfactory although it may give the clue in cases where the clinical picture is not suggestive. It may show no change, increased bronchovascular markings, rarely cavities, occasionally lower lobe atelectasis, although this may be obscured by upper lobe emphysema. Only lipiodol studies with films in different positions establish the diagnosis and the extent of the lesions. One finds cylindrical, fusiform and saccular forms, the last having the greatest mortality. The only satisfactory treatment is surgical removal of the diseased areas. This can be advised more freely now with the decreasing risk of pulmonary operations. Preoperative measures include elimination of foci in the upper respiratory tract and postural drainage. Directly after operation, bronchoscopic drainage should be performed. Postural and bronchoscopic drainage have, by themselves, merely a palliative value. The same is true of therapeutic instillation of lipiodol. The value of pneumothorax is disputed but it is generally considered contraindicated. Phrenicectomy is contraindicated. Rigid bronchial walls make thoracoplasty futile. In patients who cannot stand operation, an abdominal binder is indicated to facilitate drainage by pressure on the diaphragm. The most valuable palliative measure is the elimination of

focal infection in the upper respiratory tract. Arsenic has been used in spirochetal cases and sulfonamides in those showing streptococci or staphylococci. One cannot expect too much from chemotherapy in advanced cases. Three cases are presented. The first resulted from a foreign body and was complicated by haemoptysis. The second was a saccular bronchiectasis following whooping cough. The third was likewise saccular and apparently consequent to severe chronic upper respiratory infection, illustrating the importance of proper attention to upper respiratory infection in childhood.—*Bronquiectasia, J. Rodriguez Pastor & J. Landron Becerra, Bol. Asoc. méd. de Puerto Rico, May, 1941, 33: 181.*—(*H. B. S.*)

Inhalation of Nebulized Solutions.—Experimental studies on dogs and rabbits permitted to inhale nebulized solutions indicate that such solutions penetrate to the depths of the lungs. Substances used were scarlet red, methylene blue, brilliant cresyl blue, colloidal iron and olive oil. A histological study of the lungs of dogs allowed to inhale these substances for one or more set periods of time, either through masks or in closed chambers, showed the substances to be present in the alveoli, alveolar walls and the neighboring capillaries. All areas of the lung were reached. The solutions were rapidly absorbed. The rate of absorption was influenced by the solvent and the size of the drops. The smaller the drops, the more rapid the absorption and the less the disturbance of the respiratory rhythm. Therapeutic implications are: that nebulized medicaments if inhaled penetrate the lung tissues and have a local action; that, in view of the rapid absorption, they must be used several times a day, and that if properly chosen and prepared they will cause no cough and eventually will be completely absorbed.—*Inhalación de substancias nebulizadas: Comprobación experimental de su poder de penetración a nivel del aparato respiratorio, M. R. Castex, E. L. Capdehourat & E. A. Pedace, Arch. argent. de enferm. d. ap. respir. y tuberc., March–April, 1941, 9: 1.*—(*H. B. S.*)

Therapy with Nebulized Solutions.—The therapeutic advantages of inhalation of nebulized solutions are several. Direct action of antiseptic substances on the pathogens is made possible. Healing properties of topical applications are made available. All areas of the lung tissue can be reached as shown by animal experiments, as well as by observations on a patient with a thoracic fistula who was treated with nebulized Prontosil. The rapid absorption which occurs as a result of the tremendous surface exposed permits of systemic effects. The technique does not require a specialist. It is well tolerated. Technical recommendations are as follows: The patient should be in a sitting position to allow for maximal respiratory excursions of the chest. The vehicle should be one that is readily nebulized and well tolerated by the respiratory passages. It varies with the solute to be used. Distilled water, physiologic saline, isotonic glucose, hypertonic glucose, olive oil, alcohol and glycerine are among those employed. The concentration of the active substance must be great enough to be effective and yet low enough to be tolerated. In general, results are obtained with concentrations lower than those used for other routes of administration. The quantity of solution must be determined individually for each case and each treatment. Between 5 and 20 cc. are usually required. Sufficient time must be allowed for the inhalation of most of the solution. About one minute per cc. is usual. Treatments are given from one to four times daily. The major elimination of colored substance can be observed to occur within four or five hours. Treatment may be continuous or intermittent, depending on the case. When hypersecretion is present, the solution used should approximate the density of the secretions to facilitate diffusion. Patients should be trained to respire at the command of the therapeutist. The air used for nebulizing should be dry, to retard condensation, and free of any solid particles. The temperature of the nebulized solution should be between 25° and 40°C. Warmer solutions cause dryness and colder solutions cause cough and bronchospasm. The vapor should be warmed only after nebulization, since that process causes a fall in temperature. The chamber must have a capacity of about 5 liters, since this is enough to allow 4 or 5 breaths without serious change in oxygen or carbon dioxide tension. The purpose of the chamber

is to provide a space which can be rapidly saturated with nebulized matter and to prevent direct impact of the stream of air on the respiratory surfaces. The projection of the nebulizing current should take place immediately after a deep inspiration preceded by a full expiration. The optimal pressure is between 1 and 2.5 atmospheres. The quantity of the solution nebulized at each projection should be small, to prevent loss of solution by precipitation on the walls of the chamber. Fine drops are essential to retard chamber condensation, to be able easily to pass through the smallest air passages and to cover the greatest possible amount of tissue. To avoid bronchial oedema or spasm, addition of adrenalin or atropine or, at times, even an anaesthetic may be indicated. The patient should be tested for possible intolerance to the medication to be used. One should be sure that it will not form toxic compounds with medication taken by other routes. The patient should not carry out the treatment unsupervised. Since the medication can be shown to reach the conjunctivae through the nose and lachrymal duct, it must not be irritating to the eye. The medication can be inhaled through the mouth or the nose or both. Treatments should be given not less than one-half hour before or two to three hours after meals to avoid interference with appetite and digestion. The patient should clear the air passages as much as possible before treatment, by expectoration. After treatment, cough and expectoration should be suppressed because the local bactericidal effect of the medication on the nose, mouth and throat may be valuable. Absorption of the substances can be shown by blood studies, or at times, as with Prontosil, by the coloring of the urine. About 80 per cent of the medication reaches the depths of the lungs. The treatment should be useful to reduce the risk of surgical procedures in cases of pulmonary infection. No ill effects have been noted. No evidence of pulmonary moisture can be detected on examination following treatment. Dyspnoea is not increased.—*Técnica de las nebulizaciones y sus principales ventajas terapeuticas, M. R. Castex, E. L. Capdehourat & A. Lavarello, Arch. argent. de enferm. d. ap. respir. y tuberc., March–April, 1941, 9: 12.*—(*H. B. S.*)

Nebulized Prontosil in Suppuration of Lung.—A series of cases [apparently more than 100] of nontuberculous pulmonary suppuration were subjected to aspirations of 3 to 5 cc. of 5 per cent Prontosil diluted to 25 cc. in distilled water or normal saline. Inhalations were given three times a day. A mouthpiece was used. No washing of the mouth or cleansing of the nose was permitted, in order to allow local bacteriostatic action on the upper air passages to take place. The only toxic effects observed were cramps, often with diarrhoea. If severe, the dose of Prontosil was reduced or else the medication was discontinued, being replaced by 20 to 40 cc. inhalations of Rivanol in a concentration of 0.3 to 0.5 g. per liter. This apparently maintained the improvement due to Prontosil but did not further it. The shortest time for a cure was three months. The total amount of drug per patient was about 50 g. Haemoptysis was not considered a contraindication to the treatment. Improvement in all cases was attested by progressive diminution in cough and sputum with prompt loss of the foul odor and progressive loss of its purulent character and diminution in the number of bacteria present; prompt increase of appetite which often became voracious; gain of weight; decline of fever and erythrocyte sedimentation rate; X-ray evidence of healing. The sputum was tinted red for some hours after a treatment. Advantages of this therapy over oral sulfamide therapy include small dose and lack of toxic effects, exclusion of direct gastrointestinal effects, rapid absorption, excellent penetration of all diseased tissue, local action on upper air passages. No determination of the blood concentration was made. The cases treated had all been unsuccessfully handled by other methods, including oral sulfanilamide, showing that the method, not the drug alone, was the important factor. That the good results were not due to spontaneous improvement was attested by the severity and chronicity of the cases, the absolute failure of other therapy, the prompt improvement after institution of therapy, prompt relapse when therapy was interrupted, the almost complete disappearance of microörganisms from the sputum. Treatment of acute conditions which may eventuate into chronic conditions, by the inhalation

method, is recommended. Surgery is no longer indicated in pulmonary suppuration.—*Nuevo tratamiento de las supuraciones broncopulmonares. Acción curativa de un preparado sulfamídico nebulizado, M. R. Castex, E. L. Capdehourat & A. Lavarello, Arch. argent. de enferm. d. ap. respir. y tuberc., March–April, 1941, 9: 29.*—(*H. B. S.*)

Friedländer Pneumonia.—The bacillus Friedländer causes about 0.5 to 4.0 per cent of all the pneumonias. A number of strains of the bacillus have been classified, by immunological methods as types A, B and C with a heterologous group X. There are available the Friedländer bacillus-A and the bacillus-B serum for identification of strains by the Neufeld technique. The B-strain also swells with the type-II pneumococcus serum. Experimentally, it has been shown that type-II antipneumococcus horse serum can protect mice against the B-strain of the Friedländer bacillus. Type-II antipneumococcus serum may be of clinical value and its use is justified in cases of Friedländer pneumonia of the B-strain. The authors report a case with positive blood culture in which both sulfapyridine and type-II antipneumococcus serum were used. The patient recovered; the authors feel that recovery was most probably due to the use of sulfapyridine. From July 1, 1936 through December 31, 1939 there were 2,450 cases of pneumonia seen at Harlem hospital, New York City. In thirty-seven (1.5 per cent) the causative organism was the Friedländer bacillus. The A-strain was isolated in 29 and the B-strain in 8 cases. The relative incidence of the strains in this series, 79 per cent A-strain and 21 per cent B-strain, is similar to the figures reported in other series. Friedländer pneumonia occurs predominantly in older persons; 26 persons in this series were over forty years of age. There appears to be a tendency for the Friedländer-B organism to attack younger persons. The disease occurs more frequently in men. Where the B-strain is involved, however, the ratio of sex incidence is in the neighborhood of unity. Seven of the 29 patients with Friedländer-A pneumonia had a positive blood culture and 5 of the 8 patients with B-pneumonia had bacteraemia. In the present series, the mortality was 84 per cent; this is in accord with other figures in the literature. The mortality among the patients with the A or B-type of pneumonia did not differ significantly. There appears to be no relationship between bacteraemia and mortality. In this series, the patients without bacteraemia had a somewhat higher mortality than those with bacteraemia. In the authors' experience, the Friedländer organism is not a contaminant or a preagonal invader. Administration of serum, sulfanilamide (or sulfapyridine) or the two combined seemed ineffectual in treating patients with B. Friedländer pneumonia in this series. Among the patients with Friedländer-B pneumonia, the mortality of the treated cases was 83 per cent and the mortality of the untreated ones was 50 per cent. However, in the patients with Friedländer-A pneumonia, treatment with the drug was accompanied by recovery in 3 of 8 cases. When serum therapy is used, it should be used early and in large doses.—*Primary Bacillus Friedländer (Klebsiella Pneumoniae) Pneumonia, E. Perlman & J. G. M. Bullowa, Arch. Int. Med., May, 1941, 67: 907.*—(*H. R. N.*)

Dehydration in Bronchial Asthma.—The author believes that asthmatic attacks are precipitated by an acute state of dehydration of large areas of lung tissue. As is well known, he argues, only oxygen dissolved in moisture is absorbed across the alveolar membrane. When, by reason of allergy, the bronchial glands suddenly cease to produce a moist coating for the alveolar membrane, oxygen can no longer be absorbed from the affected area and an asthmatic attack results. This would account for the fact that lungs coming to section after death has occurred during an acute asthmatic attack, usually show marked emphysema and bloodlessness of the upper lobes, and marked congestion of the lower lobes. An attempt is made to explain the beneficial action of various drugs commonly used in asthma in terms of the dehydration theory.—*Die Dehydrations-theorie des echten bronchialasthmatischen Anfalles, R. Pressburger, Schweiz. med. Wchnschr., May 3, 1941, 71: 581.*—(*H. M.*)

Bronchial Asthma.—In the human a complete shock almost never occurs as in experimental animals but only "fragments of shock" (Schockfragmente). Bronchial asthma is a "shock fragment." It is usually caused by inhaled antigens. Frequent antigens are spores of moulds and pollen. In children food allergens are more common causes of asthma. Skin reactions have to be tested for an exact diagnosis.—*Asthma als Schockfragment. Die Beurteilung der speziellen Pathogenese und Aetiologie der Erkrankung, K. Hansen, Wien. klin. Wchnschr., February 28, 1941, 54: 175.* —(*G. C. L.*)

X-ray Findings in Bronchial Asthma.—Chest X-ray examinations were done in 154 patients with bronchial asthma. The findings were as follows: Pulmonary emphysema in 50 patients (32.6 per cent); thickening of bronchial walls in 54 patients (35.5 per cent); nonspecific pulmonary infiltrations in 13 patients (8.4 per cent); pleuritic manifestations in 28 patients (18 per cent); tuberculosis in 36 patients (23.4 per cent), only one of whom showing a cavernous tuberculosis; symptoms of disturbances in the pulmonary circulation in 32 patients (20 per cent).—*Die bronchial-asthmatischen Zustände im Röntgenbild, A. Leb, Wien. klin. Wchnschr., February 28, 1941, 54: 181.*—(*G. C. L.*)

Silicosis in Soft Coal Miners.—The incidence and extent of silicosis was studied in 774 coal workers of the Southern Appalachian region. An equal number and of a comparable age of steel plant workers in the Chicago district was studied as a control group. In the group studied 2 per cent of the miners showed presilicotic changes and 1 per cent showed silicotic nodulation. These changes occurred chiefly among undercutting machine operators and coal loaders. The shortest exposure period producing nodulation was eleven years occurring in a rock driller.—*Silicosis in Soft Coal Miners, B. G. Clarke & C. E. Moffet, J. Indust. Hyg. & Toxicol., May, 1941, 23: 176.*—(*T. R. J.*)

Silicosis.—There has been no clear conception of the fact that silicosis is far more prevalent in other dust-producing industries than in mining. The composition of the dust plays a rôle both as regards the development of the silicosis and type of roentgen film it produces. The type of silicosis depends on the quantity of dust inhaled, and thus on the speed with which silicosis develops. The type and degree of development of silicosis in a given industry in one country cannot be compared with what is found in another, hence it is necessary to build up one's own experience in regard to type and degree of silicosis in the occupations of a given place. The conditions under which the work is performed plays an important rôle. That silicosis in general should offer a particularly good soil for tuberculosis carries little weight in the light of experimental researches. It is not denied that certain types of silicotics are more susceptible than others, especially the rapidly progressive types. The many cases of silicosis mistaken for old tuberculosis are due to the radiologist not being familiar with the various forms which silicosis may assume. Many of them do not know that changes which mark silicosis in the third stage may have exactly the same appearance as that found in a case of severe old tuberculosis. Some authors maintain that such massive silicosis is always complicated by tuberculosis which is absolutely not so. When fresh tuberculosis is found in a silicotic lung, and fairly isolated from the silicotic process, it is easy to distinguish the tuberculous changes from the silicotic ones; but if they blend with each other it may be impossible to make a diagnosis from the roentgenological film alone. The history and the clinical features must be considered. It is extremely important that all roentgenologists should be entirely familiar with the different forms and types which silicosis may assume. —*The Silicosis Problem, P. F. Moller, Radiology, April, 1941, 36: 482.*—(*G. F. M.*)

Prognosis in Silicosis.—In a study of 511 anthracite-coal miners with silicosis, it was found that only 77 were discharged as improved, while 243 were unimproved and 191 died. The ages of those who improved and those who died varied from fifteen to sixty-nine years, with the majority in the fourth, fifth and sixth decades. Most of the deaths occurred in the fifth and

sixth decades in those who had worked from eighteen to twenty-three years. Emphysema is the most common complication and when extensive, prognosis is unfavorable. The second most common complication is tuberculosis. The prognosis in the first and second stages of silicosis complicated by tuberculosis is the same as in nonsilicotic tuberculosis; but in stage-III, the prognosis is made much worse. Patients with clinical tuberculosis but with negative sputum had a better prognosis than those with clinical tuberculosis and positive sputum. In exceptional cases of noncomplicated silicosis, cavities varying in diameter from 15 mm. to 3 cm. may be recognized on the roentgenograms. These cavities are apparently the result of ischaemic necrosis rather than of tuberculosis, as has been proved by post-mortem examinations and animal inoculation. When there is massive consolidation in the lungs, it is difficult to say whether tuberculosis is present. The roentgenological changes most suggestive of tuberculosis are asymmetrical consolidation and cavitation, regardless of the findings in the sputum. Lobar pneumonia terminates fatally more often in patients with silicosis than in nonsilicotic patients. Heart disease, which is a common accompaniment of silicosis, makes the prognosis unfavorable. The most common type is myocardial degeneration with hypertrophy and dilatation of the right side of the heart. Interestingly, in patients with complicating tuberculosis, symptoms of myocardial insufficiency are often seen, but actual hypertrophy is comparatively rare. Miners with clinical findings of myocardial insufficiency and roentgenological evidence of cardiac enlargement without fever usually suffer cardiac deaths. If marked toxaemic symptoms of tuberculosis are also present, tuberculosis is usually the cause of death. Spontaneous pneumothorax occurs more frequently in silicosis complicated or uncomplicated by tuberculosis than in any other pulmonary disease; it was present in 22 instances in the total series. It may be bilateral and affects the prognosis unfavorably. Carcinoma of the bronchus is not a common complication; it was encountered in 4 cases of the series.—*Prognosis in Silicosis, J. T. Farrell, Jr., M. J. Sokoloff & R. Charr, Am. J. Roentgenol., November, 1940, 44: 709.*—(*W. H. M.*)

X-ray Diffraction in Dust Analysis.—When presented with the problem of identifying very small or even colloidal particles of mineral matter, X-ray diffraction is rapidly proving to be the method of choice. Only a small sample and a relatively short time is required for the determination. The disadvantages of this method are that it is not applicable to the detection of minute amounts of minerals and the presence of more than four or five substances confuse the interpretation of the results. Mineral and dust specimens, chemically extracted mineral residues of lung tissue, 6μ tissue sections as well as thicker sections, and dried and pulverized lung tissue were examined by X-ray diffraction with satisfactory results. If the dust concentration will permit, the same section which the pathologist has studied may be used for the demonstration of the minerals.—*X-ray Diffraction—An Important Tool in Pneumoconiosis Research, L. H. Berkelhamer, J. Indust. Hyg. & Toxicol., 1941, 23: 163.*—(*T. R. J.*)

Lesions of Lungs in Lymphomatoid Diseases.—Lesions of the lungs in Hodgkin's disease, lymphosarcoma, mycosis fungoides and leukaemia are probably much more common than is generally believed. Their form is extremely variable, involving the mediastinal nodes, lungs and pleura to different degrees. They may be very radiosensitive, but because of depth and character of their tissue bed may not be so easily controlled by irradiation as are some other manifestations of these diseases. Cavitation in the centre of specific granulomatous masses in the lung may occur in Hodgkin's disease. Tracheobronchial fistulae may occasionally be found in Hodgkin's disease. The pulmonary lymphomatous lesions may be rather silent clinically and not detectable by physical signs. Therefore, a plea is entered for more frequent roentgen examinations of the chest in the case of patients suffering from the lymphomatous diseases.—*Lesions of the Lungs in the Lymphomatoid Diseases, L. F. Craver, R. R. Braund & H. Y. Tyler, Am. J. Roentgenol., March, 1941, 45: 342.*—(*W. H. M.*)

Sarcoma and Lymphogranuloma of Lung.—Sarcoma of the lung, excluding growths of lymphatic origin, is extremely rare. Only 2

cases were found in the author's material. Some of the reported cases are in reality small-cell epitheliomata. Histological classification is unsatisfactory because of variations in appearance in different parts of the same tumor. They are most frequent in children and young adults. They present the usual symptoms and signs of pulmonary and mediastinal disease. A definite diagnosis can be made only histologically. On X-ray films, they present a rounded, homogeneous, sharply demarcated shadow, distinguishable from a cyst by its progressive enlargement. They may reach enormous proportions and may become excavated if of long duration. Bronchial stenosis with atelectasis is not the rule, but occurred in the 2 cases reported. It is due to external pressure. Pleural effusion is rare. Any of the tissues in and about the chest may be injured by pressure and the ribs may be eroded. Metastases are blood-borne and less frequent than in epitheliomata. The duration of the disease varies from two to thirty-two months. In general it is short. The usual diagnostic methods for pulmonary disease are indicated. The tumors are sensitive to X-rays, which may be used as a therapeutic test. Treatment with X-ray, radium or surgery affords only temporary results. One case of a fibroblastic sarcoma and one of fibromyxosarcoma are reported in some detail. Pulmonary lymphogranuloma is rare. The lung may be the primary site or may be invaded from the hilar nodes. Five anatomical types are: (*1*) nodular mediastino-bronchial with invasion of the lung directly or via the surface, (*2*) nodular mediastino-bronchial with intra- and/or peribronchial invasion, (*3*) diffuse nodular pulmonary infiltrations with participation of the mediastinal nodes, (*4*) lobar confluent form with node involvement, (*5*) miliary form, which is rare, with participation of the nodes. A cavitary form also exists with or without associated tuberculosis. Most usual symptoms are cough, sputum and haemoptysis. Nodular forms usually are silent for a long time. Physical signs vary with the lesion. The mediastinal syndrome and small pleural effusions are frequent. There are two fundamental types of X-ray picture—the more frequent a unilateral hilar infiltration continuous with an enlarged mediastinal shadow, and the less frequent, one or more isolated foci which may secondarily invade the perihilar area. In the latter type excavation may be seen. It is distinguished from tuberculosis, not only by the absence of bacilli, but by location in the lower two-thirds of the lung fields; from leukaemic infiltrations by the blood count; from epithelioma by its localization and the less rounded and homogeneous character of the granulomatous nodules. This latter also distinguishes it from secondary epithelioma. Diagnosis is made by the youth of the patient and the usual associated signs and symptoms of lymphogranulomatosis plus biopsy or test of radiosensitivity and/or the Gordon test. A negative tuberculin reaction is helpful. Illustrative cases are presented.—*Sarcoma y linfogranuloma pulmonar, J. Palacio & E. S. Mazzei, Arch. argent de enferm. d. ap. respir. y tuberc., October-November-December, 1940, 8: 191.*—(*H. B. S.*)

Tumors of Lungs.—During the last ten years 130 cases of primary lung tumor were studied at the Ukrainian State Roentgenologic and Oncologic Institute in Kharkov. Two cases were pulmonary fibromata; 3 were sarcomata; one was a case of lymphangitis sarcomatosa; the others were bronchogenic carcinomata. Only 9 patients were females. The great majority were in the fifth and sixth decades of life. Of note was the verification of diagnosis of carcinoma by microscopical examination of the sputum in 45 patients. Post-mortem confirmation was obtained in 8 of these patients. In 59 cases the diagnosis was made principally on roentgenological data. The following signs were considered of importance: a dense solitary shadow on one side of the chest, displacement of the mediastinum during inspiration, rise of diaphragm on the side of the lesion, paradoxical movement of the diaphragm, metastases in bones, lymph nodes and other organs. In this group of 59 cases, metastases were found in 20, bronchography revealed bronchial stricture in 3, the tumor was demonstrated surgically in one and by bronchoscopy in 3. In 65 cases the diagnosis of carcinoma was proved on histologic examination. Forty-four patients in this group received roentgen therapy; the average period of survival was

about eight months, with 6 patients living fifteen months to three years after the diagnosis was made. The period of survival for the 21 untreated patients of the same group was only five and a half months. The influence of roentgen therapy on clinical symptoms is beneficial; all authors agree that the pain is alleviated. In many cases the dyspnoea diminishes, pain disappears or diminishes, sometimes even the cough disappears. The patients gain weight and are often able to return to work. In some cases symptoms seem to be aggravated. Contraindications for the use of roentgen therapy are poor general condition and fever.—*Primary Tumors of the Lungs, B. E. Farberov & E. A. Baslow, Am. J. Roentgenol., May, 1941, 45: 701.*—(*W. H. M.*)

Early Diagnosis of Cancer of Lung by Bronchial Lavage.—Study of the sputum for neoplastic cells has been carried out since 1865. With present-day technique, neoplastic cells can be demonstrated in the sputum in 70 to 80 per cent of cases. The present study, however, concerns itself with the usefulness of such study for early diagnosis. Specimens were obtained through the bronchoscope as follows: The blood-stained secretions collecting in front of the instrument (which contain traumatic scrapings of the mucosa) were aspirated through one limb of a double catheter. Up to 20 cc. of normal saline was then run in through the second limb and simultaneously aspiration through the first limb was carried out. All aspirated material was collected in a test tube placed in circuit between the aspirator and the catheter. The sediment was studied for neoplastic cells. Five cases in which biopsy was not considered feasible are reported. In all, the lavage technique gave positive results. In 4 of these, the presenting symptom was bloody sputum. In 4 cases small infiltrations of the bronchial wall were shown by bronchoscopy. In the fifth case, bronchoscopy revealed only some coagulated blood in one main bronchus. In 2 cases, the further course has substantiated the diagnosis. In none of the cases was the diagnosis definite from the clinical and radiologic evidence alone. It is felt that these results are very promising. Further case study is needed before a definite evaluation of the method is possible.—*El lâvado bronquial en el diagnóstico precoz del cancer de pulmón, A. E. Bence, An. de la catedra de patol. y clin. de la tuberc., December, 1940, No. 2: 412.*—(*H. B. S.*)

Tumors at Apex of Lung.—Tumors at the apex of the lung may be primary or secondary. In either case they give certain rather characteristic signs and symptoms due to early involvement of the brachial plexus and cervical sympathetic nerves; occasionally the recurrent laryngeal nerve is involved. Roentgenograms show a soft tissue shadow in the apex of the lung which usually appears small and insignificant compared with the symptoms of the patient. Frequently, but not invariably, physical signs can be detected over the apex. Erosion of the posterior portions of the ribs is almost always present, the first three ribs being most commonly involved, although the fourth and fifth may also be eroded. Bone destruction in adjacent vertebrae may take place at a later date, and cord signs and symptoms usually appear if the patient lives long enough. Most primary apical lung tumors occur in men. They produce excessive weight loss but seldom cause cough or haemoptysis. Not infrequently they give rise to metastases. The life expectancy from such tumors, regardless of origin, is short, usually a year or less. They do not respond to irradiation. Five cases of apical lung tumors are reported; the first a metastatic lesion from a carcinoma of the lower third of the oesophagus, the second a bronchogenic adenocarcinoma, the third a metastatic lesion from a scirrhous carcinoma of the stomach, the fourth an atypical type of carcinoma probably primary in the lung, the fifth considered either a chromaffinoma in the right apex or a metastasis from carcinoma of the thyroid gland.—*The Origin of Tumors Occurring in the Apex of the Lung, W. C. Hall, Am. J. Roentgenol., December, 1940, 44: 838.*—(*W. H. M.*)

Emphysema in Children.—Primary tuberculosis in children may result in obstructive emphysema due to pressure of enlarged hilar lymph nodes on the soft bronchial walls. Three cases are added to the total of 16 authentic cases in the literature. The greatest incidence

occurs between six months and one year. It is rare past the age of seven. Occasionally the clinical picture begins suddenly but usually the onset is insidious and characterized by a protracted dry cough. Wheezing and occasionally dyspnoea follow later. The bronchial stenosis may be due to compression by enlarged nonulcerated lymph nodes or to intrabronchial tuberculous granulation tissue. Asthma or aspirated foreign bodies very closely simulate the clinical picture but may be differentiated by bronchoscopy and tuberculin tests. Bronchoscopy has a therapeutic as well as diagnostic value. Two of the 3 cases reported in this paper were associated with marked passive atelectasis of the contralateral lung due to mediastinal displacement. The prognosis depends on the underlying condition.—*Tuberculous Obstructive Emphysema in Children, B. Barsby, Lancet, May 17, 1941, 1: 627.—(J. B.)*

Cystic Disease of Lung.—Congenital or (preferably) "developmental" pulmonary cyst is a rare lesion; it must be roentgenographically evident from birth and histologically proved before it can be so designated. The majority of so-called cystic diseases of the lung are acquired. The most logical causative factors are bronchopneumonia and purulent bronchitis. Cystic disease of the acquired type is classifiable into four types. (*1*) Cystic bronchiectasis represents the most severe damage and the minimal resolution; this is produced by a combination of the destruction and dilatation of the bronchial and bronchiolar walls with more or less cicatricial stenosis of their proximal lumen and an associated distension of their associated pulmonary lobules which remain infected (exudative bronchiectasis), or are diffusely scarred and surrounded by interstitial changes (*bronchiectasis sicca*). The check-valve of bronchial exudate or cicatrix has persisted long enough for the interstitial and mural scarring of the parenchyma to have been effected in the distended or emphysematous state. (*2*) Chronic interstitial pneumonitis with emphysema is commonly the product of a similar but less severe process, in which the destructive changes in the bronchioles are minimal, but the interstitial infection has resulted in chronic scarring while the emphysematous alveoli were fixed in that state. (*3*) Chronic bullous emphysema is a more localized lesion probably due to a local bronchitis with or without bronchopneumonia and sufficient interstitial pneumonitis to fix that segment of lung in a state of vesicular emphysema. (*4*) The pneumatocele is a localized alveolar or lobular ectasia which may assume alarming proportions and embarrass respiration. It usually appears suddenly in association with a more or less confluent bronchopneumonia. Roentgenologically, within a relatively short period of time an area of apparently confluent pneumonia appears to virtually shell out, but without excessive expectoration. The pneumatocele is a check-valve phenomenon or produced by inflammation and exudate in the associated bronchiole or bronchus and enhanced by severe spasms of coughing. If the interstitial inflammation is not severe and the check-valve effect in the bronchus resolves, the "air cyst" will disappear with relief from the accompanying dyspnoea. When this local emphysema resolves, there should be little or no roentgenographic evidence of any scarring and the bronchogram will be essentially normal in appearance.—*"Cystic" Disease of the Lung, C. B. Peirce, Am. J. Roentgenol., December, 1940, 44: 848.—(W. H. M.)*

Congenital Absence of Lung.—A case is recorded of congenital absence of the left lung in a female of 23. The diagnosis was based on clinical, bronchoscopic and radiographic findings, including tomography. Study of the literature on congenital defects of the lung reveals certain features in common between the case recorded and those described by others. The similarities were absence of pulmonary blood vessels in the affected side, hypertrophy of the non-affected lung, absence of cardiac hypertrophy, commonly left-sided, frequency of lobar abnormalities and abnormalities in the cartilaginous skeleton of the trachea. The author reproduces a verbatim facsimile copy of Hurwitz and Stephen's summary of published cases, as well as a few additional ones which appeared since. The complete list numbers 36 instances tabulated in considerable detail.—*A*

Case for Discussion, with Special Allusion to Congenital Absence of Lung, D. G. Madigan, Tubercle, June, 1941, 22: 144.—(E. H. R.)

Atelectasis in Spontaneous Pneumothorax.—Four cases of spontaneous pneumothorax with accompanying atelectasis are presented. Pulmonary disease was absent in all four. The cases were observed with the thoracoscope. It is believed that atelectasis in spontaneous pneumothorax is mainly due to nervous reflexes. The nervous supply of the pleura and lung is briefly described. Atelectasis is also known to have occurred reflexly in therapeutic pneumothorax. A case is cited where marked reaeration of the collapsed lobe was produced by the administration of atropine.—*Die Atelektase beim Spontanpneumothorax, J. Palacio & E. Mazzei, Schweiz. med. Wchnschr., May 10, 1941, 71: 601.—(H. M.)*

Infarction of Lung.—Among 6,548 autopsies performed at the Cleveland City Hospital from January 1, 1930 to December 31, 1939, there were found 344 instances of aseptic haemorrhagic infarction of the lung, an incidence of 5.2 per cent. In 174 of these 344 cases, the infarct was considered to be the major cause of death or an important contributory factor. The infarct was considered significant if it was 5 cm. in size or larger. Multiple infarcts, even if smaller, were considered significant. Even if it was large, the infarct was classified as unimportant if another adequate cause of death existed. The lower lobe, especially of the right lung, was the most frequent site of infarction. Of 241 cases in this material in which there was heart disease and pulmonary infarction, irrespective of the presence of cardiac failure, the infarct was an important cause of death in 157 or 65 per cent. Of 103 cases in which there was no heart disease, the infarct was significant in only 17 or 16 per cent. Pleural effusion was present in a large number of cases but the relation to the infarct was difficult to evaluate since many of these patients were in cardiac failure. There were a few cases, without heart disease, in which the effusion appeared to be definitely related to the infarct. In most cases the effusion was serous although in some it was serosanguineous. In 73 of the 174 cases in which the infarct was a significant cause of death, the clinical observations could be correlated with those made post-mortem. The most important clinical findings were haemoptysis, râles, pain, dulness, dyspnoea, bronchial breath sounds, friction rub and cough. In 55 of these 73 cases, there was clinical evidence that an infarct had occurred within the last twelve days of life. In 23 cases the infarct was followed by death in three days or less. On the same day that the infarct made itself evident, there was an average increase in temperature of 2.7°F. Icterus was noted in some cases but its significance was difficult to evaluate since many of these cases were suffering from severe passive congestion of the liver. There were several cases in which a secondary abscess developed in the infarct with a bronchopleural fistula and empyema. These patients expectorated foul purulent sputum. The typical post-mortem appearance of a triangular infarct in a lower lobe is the exception rather than the rule in the roentgenogram, unless exposures are made in more than one projection. Unless the roentgen rays pass at right angles to the infarct, the shadow will be ovoid or round rather than triangular. The finding of a round shadow in such cases has led to mistaken attempts at pneumonectomy for supposed tumor of the lung. The density of the shadow is usually less than that of lobar pneumonia. At times the appearance is only that of a hazy horizontal streaking at the base, usually with some elevation of the diaphragm. This streaking may simulate localized patches of atelectasis. If X-ray films are made within an hour or two of the occlusion of the branch of the pulmonary artery, an area of avascularity in the pulmonary field is noted. Secondary bronchopneumonia may appear causing edges of the shadow to appear feathery rather than well defined. The development of an effusion may obscure the infarct entirely. Even a small infarct may leave a shadow which persists for many months or years. The residual shadow resembles streaks of fibrous tissue. The shadow of an infarct must be differentiated from that seen in lobar pneumonia, bronchopneumonia, abscess, neoplasm, cyst, passive hyperaemia and interlobar effusion. In this series of 174 significant

infarcts, the condition was correctly diagnosed clinically in only 22 per cent. Clinically, infarct must be differentiated from pneumonia. The presence of bacteria, especially pneumococci, and response to specific therapy would favor the diagnosis of pneumonia. The absence of a chill, the rapid accumulation of a pleural effusion and an increase in the signs of cardiac failure would point to the presence of an infarct. Five illustrative case records are cited.—*Infarction of the Lung, G. R. Krause & E. M. Chester, Arch. Int. Med., June, 1941, 67: 1144.*—(*H. R. N.*)

Bronchoscopy.—This is a summary of the indications for bronchoscopy, both of a subjective and an objective nature. The most important symptoms of partial or complete bronchial obstruction are cough, haemoptysis, and wheezing respiration. An important X-ray sign of bronchial stenosis is obstructive emphysema, which may be localized to part of a lobe or involve an entire lobe. This diagnostic means is invaluable in the prompt recognition of bronchial carcinoma. The importance of performing bronchoscopy early during the course of unexplained or mild symptoms referable to the respiratory tract will aid materially in the number of surgical cures. Further indications, both diagnostically and therapeutically, are lung abscess, bronchiectasis, benign bronchial neoplasm and foreign body. The author concludes that the greatest field of usefulness is in the diagnosis of obscure bronchopulmonary disease and in the treatment of known conditions that respond favorably to bronchoscopy. —*Bronchoscopy as a Diagnostic Aid in Nontuberculous Pulmonary Disease, L. Clerf, West. J. Surg., October, 1941, 19: 557.*—(*H. M.*)

Traumatic Bronchostenosis.—This is a case report of an extreme bronchostenosis following a severe compression injury of the thorax. At the time of the accident, the right main bronchus was practically torn across at a point about 2 cm. below the carina. The two fragments were displaced to such a degree that only a needle point opening connected the upper and the lower fragments. In the course of time a severe stenosis developed, characterized by dyspnoea of an asthmatoid character, bronchiectasis, atelectasis and severe febrile infections of the atelectatic right lung. The patient was treated systematically with the electric cautery and dilatation by bougies through the bronchoscope. The end-result was satisfactory, inasmuch as the lumen of the right main bronchus had been dilated to the diameter of a pencil and the patient remained free of recurrences of severe pulmonary infection and was able to resume her work.—*"Über traumatische Bronchostenose und ihre Behandlung, W. Löffler & F. Nager, Schweiz. med. Wchnschr., March 15, 1941, 71: 293.*—(*H. M.*)

Roentgen Diagnosis of Nonopaque Foreign Body.—Nearly 50 per cent of foreign bodies in the respiratory tract are nonopaque. Ninety per cent occur in children under three years of age. The usual history is that of a sudden violent onset after previous good health with coughing, choking and gagging, accompanied by respiratory difficulty. These onset symptoms subside after a short time only to reappear in a few hours, rarely, if ever, more than twenty-four hours. The patient then complains of paroxysmal cough, increasing dyspnoea and exhaustion. The symptom-free interval occurs in nearly every case. Physical examination reveals restlessness, an anxious facies, cyanosis, limited expansion of the affected side, rapid and jerky respiration which is accompanied by wheezing. Signs depend on the location, size, shape and nature of the foreign body. They are apt to change rapidly. Fluoroscopy is the best means of studying slight abnormalities of respiratory movement. Roentgenograms are made at the end of full inspiration and at the end of full expiration. The early roentgen signs are essentially those of incomplete or complete obstruction at some point along the lower respiratory tract. Incomplete obstruction may produce either atelectasis or emphysema of the lung. If obstructive emphysema is present the following signs are noted. At the end of full inspiration, unless overinflation is marked, the affected area shows no increase in transparency, the mediastinum is in normal position, and the diaphragm is at its normal level. At the end of full expiration the affected area shows an increase in transparency as compared with the opposite

unaffected lung; the intercostal spaces remain widened; the mediastinum shifts away from the affected area; the diaphragm on the affected side is depressed, on the unaffected side is at the normal level. A moderate degree of emphysema may persist for a few days after removal of the foreign body due to swelling of and exudate in the bronchus. If the point of incomplete obstruction is in the larynx or trachea, bilateral emphysema will develop. More than the normal amount of residual air is present in both lungs at the end of full inspiration. There is limitation of motion of the diaphragm on both sides, and it may be at a lower level on expiration than on inspiration. There is no mediastinal shift. There is a marked decrease in the transverse diameter of the heart on expiration as a result of squeezing of the heart and intrathoracic vessels between the lungs during the expiratory effort. Atelectasis results from partial or complete obstruction of a bronchus. The lung distal to the point of obstruction shows a homogeneous increase in density. The mediastinum may shift to and fro slightly, but is displaced toward the affected side throughout both phases of respiration. The heart will be in the normal position only in those cases in which the lung fills with exudate, forcing it to the midline. The picture would then be that of a consolidation. The diaphragm on the affected side is at a higher than normal level, and its motion is very limited. A compensatory emphysema of the contralateral lung is nearly always present. A small percentage of foreign bodies are unimpacted and move more or less freely producing varying signs. The roentgen signs found after the foreign body has been present for a long time are those of the complications resulting from obstruction and infection; that is, pulmonary abscess, bronchiectasis and drowned lung.—*The Roentgen Diagnosis of Nonopaque Foreign Body in the Lower Respiratory Tract, A. E. Morrison & H. J. Walton, Am. J. Roentgenol., June, 1941, 45: 843.*—(*W. H. M.*)

Removal of Foreign Body by Thoracoscopy.—An empyema in a patient of sixty years was drained through a small incision. As a result of manipulation of the dressings by the patient the night following the operation, the rubber drain dropped into the pleural cavity, causing intense dyspnoea. It was considered too dangerous, because of the possibility of rupturing adhesions and because of difficulties in visualization, to attempt to remove the drainage tube under fluoroscopic control. Visualization by thoracoscopy was unsuccessful because the lung obstructed the lens. Saline solution was allowed to flow into the wound slowly through a catheter, returning both through the wound and through the patient's mouth. In this way, as in cystoscopy, it was possible to obtain a clear view of the cavity, which showed many adhesions and, at the bottom, the tube, which was extracted with a curved clamp. The dyspnoea cleared up immediately and the patient remained afebrile. Thus a serious situation was resolved with a simple maneuver. This would be useful wherever, as a result of a fistula or for other reasons, a satisfactory air-filled cavity cannot be established for thoracoscopy.—*Extraccion de un cuerpo extraño por la toracoscopia, T. Denis & O. Garré, Arch. argent. de tisiol., October-December, 1940, 16: 353.*—(*H. B. S.*)

Mediastinal Emphysema.—This is a case report of mediastinal emphysema complicating radical dissection of the neck for carcinomatous lymph nodes. The patient died on the operating table. Postmortem X-ray of the chest and autopsy demonstrated mediastinal emphysema and incomplete bilateral pneumothorax. The pathogenesis of this condition is probably a partial obstruction of the air passages, so that air is sucked into the mediastinum by the increased negative pressure. Rupture of subpleural mediastinal blebs is responsible for the pneumothorax. The authors conclude that a clear airway is important in the prevention of the condition, and once it is established artificial respiration is contraindicated. The complication should be diagnosed promptly and decompression of the pneumothorax is to be carried out immediately.—*Mediastinal Emphysema and Bilateral Pneumothorax following Radical Dissection of the Neck, L. Ackerman & E. Bricker, Arch. Surg., September, 1941, 43: 445.*—(*H. M.*)

Mediastinal Pneumonocele.—This term is used to describe the herniation of a healthy lung through some weak point of the mediastinum; it is, thus, different from "pleurocele", a mediastinal herniation frequently seen during pneumothorax treatment. A pneumonocele may be of two types: the first type, "by traction", is due to contralateral pulmonary retraction, either sclerotic or atelectatic; the second type, "by distension or impulse", is due to intrinsic distension of one lung at the expense of the opposite lung, no matter what its condition. Pneumonocele by traction is a fairly frequent occurrence. Its timely recognition is important in order to avoid eventual accidents that might occur in the course of thoracic surgery. Normal radiograms seldom show this condition; tomography, however, has demonstrated that pneumonocele by traction occurs more frequently than ordinary herniations in the course of pneumothorax. Pneumonocele by traction has been observed with greater frequency during the course of pulmonary tuberculosis; but any sclerotic or atelectatic process may determine its occurrence. Immediate determining factor is a disbalance in the elastic tension of the two lungs, that is followed by an accentuation of the intrapleural negative pressure with subsequent traction of the better lung through the *locus minoris resistentiae* of the mediastinum. Symptoms of this condition are often lacking: it may be suspected only by thorough physical examination. In the tomogram a true pneumonocele always appears beyond the line of the trachea, even when the latter is grossly shifted beyond the midline. Pneumonocele by distension is not so common and not so easily recognizable. It usually occurs in early infancy, occasionally in the very first hours of life, and is based on grave anatomical abnormalities. It is most often congenital. This form of pneumonocele has been seen in cystic disease of the lungs and in bulbous and acute obstructive emphysema. It is either caused by a chronic distension or by a sudden overdilatation of the lungs. From the aetiological and pathogenic viewpoint it resembles spontaneous extrathoracic pulmonary hernia. Symptoms are present in the acute stage, usually absent in the chronic form. Tomography is indispensable for the diagnosis. It is believed that the classic chapter on pulmonary herniations should undergo a revision and an amplification.—*El neumonocele mediastinal, B. Enquin, Ann. de la catedra de pat. y clin. d. tuberc., December, 1939, 217.*—(*S. L.*)

Acute Mediastinitis.—The two most common causes of acute mediastinitis are oesophageal injuries and virulent infections of the pharynx. Other causes are infrequent. There are three main types of mediastinitis: (*1*) mediastinal lymphadenitis, nonsuppurative or suppurative, (*2*) phlegmonous mediastinitis, (*3*) mediastinal abscess. Clinically, cases are classified as fulminating (usually fatal in a few days), of moderate severity (lasting one to four weeks, many fatal), and mild (usually a well localized abscess). The roentgenological examination is the sole means of accurately localizing the lesions for surgical purposes. When the lymph nodes are sufficiently enlarged in mediastinal lymphadenitis, the mediastinal shadow is widened and presents a lobulated border which serves to differentiate the process from mediastinal abscess. If the nodes are suppurative and matted together, the widened mediastinum appears to bulge, also simulating an abscess. Mediastinal widening may not be present in early phlegmonous mediastinitis, but spread to the pulmonary and pleural lymphatics is indicated by the presence of strand-like shadows radiating from the hilum into the lungs, or by a bilateral pleuritis. There soon develops a diffuse widening and straightening of the superior mediastinal shadow which appears to spread outward over the apex of the lung as a result of depression of the mesial borders of the pleural cupolae by inflammatory exudate. The increased density of the mediastinal shadow may obscure the trachea and aortic knob. A lateral roentgenogram of the neck shows widening of the retrotracheal space. The rapid widening of the mediastinal shadow and bulging border following upon or concomitant with an abscess of the neck indicates a mediastinal abscess. The bulge of the abscess is usually on the right. The trachea in the neck and chest is displaced anteriorly and may become bowed anteriorly. An abscess of the lower mediastinum on the

right side causes a semicircular shadow, projecting into the pulmonary field similar in appearance to an empyema of the mesial portion of the pleural cavity. On the left side, an abscess may be demonstrable only by examination in the left oblique position. Occasionally, a fluid level is present in the abscess. Radiopaque foreign bodies are visualized directly; non-opaque bodies may be recognized by adherence to them of ingested barium. The early picture of a mediastinal abscess perforating into the lung is that of a localized area of pneumonic consolidation adjacent to the mediastinum. A cavity with a fluid level extending to the left of the trachea will appear if there is free communication with the oesophagus or if the abscess breaks into a bronchus. Perforation of an abscess or large oesophageal perforations may produce a pyopneumothorax. Unless associated with evidence of emphysema of the mediastinum or at the root of the neck the origin may not be suspected. Ingested iodized oil may enter the pleural cavity. Surgical exposure of and drainage to a laceration of the esophagus is strongly recommended in most cases as a prophylactic procedure. With roentgenographic evidence of a widened retrotracheal space, a cervical approach is warranted in cases of posterior mediastinitis derived from the neck, even though an additional thoracic approach might be required. The operative approach to the posterior mediastinum should be based on painstaking efforts at localization of the lesion by physical signs, oesophagoscopy in some of the perforative lesions, but above all, by precise roentgenological studies.—*Acute Mediastinitis, H. Neuhof & C. B. Rabin, Am. J. Roentgenol., November, 1940, 44: 684*—(*W. H. M.*)

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Mediastinal Pneumonocele.—This term is used to describe the herniation of a healthy lung through some weak point of the mediastinum; it is, thus, different from "pleurocele", a mediastinal herniation frequently seen during pneumothorax treatment. A pneumonocele may be of two types: the first type, "by traction", is due to contralateral pulmonary retraction, either sclerotic or atelectatic; the second type, "by distension or impulse", is due to intrinsic distension of one lung at the expense of the opposite lung, no matter what its condition. Pneumonocele by traction is a fairly frequent occurrence. Its timely recognition is important in order to avoid eventual accidents that might occur in the course of thoracic surgery. Normal radiograms seldom show this condition; tomography, however, has demonstrated that pneumonocele by traction occurs more frequently than ordinary herniations in the course of pneumothorax. Pneumonocele by traction has been observed with greater frequency during the course of pulmonary tuberculosis; but any sclerotic or atelectatic process may determine its occurrence. Immediate determining factor is a disbalance in the elastic tension of the two lungs, that is followed by an accentuation of the intrapleural negative pressure with subsequent traction of the better lung through the *locus minoris resistentiae* of the mediastinum. Symptoms of this condition are often lacking: it may be suspected only by thorough physical examination. In the tomogram a true pneumonocele always appears beyond the line of the trachea, even when the latter is grossly shifted beyond the midline. Pneumonocele by distension is not so common and not so easily recognizable. It usually occurs in early infancy, occasionally in the very first hours of life, and is based on grave anatomical abnormalities. It is most often congenital. This form of pneumonocele has been seen in cystic disease of the lungs and in bulbous and acute obstructive emphysema. It is either caused by a chronic distension or by a sudden overdilatation of the lungs. From the aetiological and pathogenic viewpoint it resembles spontaneous extrathoracic pulmonary hernia. Symptoms are present in the acute stage, usually absent in the chronic form. Tomography is indispensable for the diagnosis. It is believed that the classic chapter on pulmonary herniations should undergo a revision and an amplification.—*El neumonocele mediastinal, B. Enquin, Ann. de la catedra de pat. y clin. d. tuberc., December, 1939, 217.*—(*S. L.*)

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diagnosis can be made only by X-ray examination. The knowledge of the different diaphragmatic herniae is necessary because of the danger of incarceration.—*Seltene Zwerchfellhernien, Erika Ellinger, Wien. klin. Wchnschr., April 25, 1941, 54: 363.*—(*G. C. L.*)

Pain in Side.—The causes of side-ache or "stitch in the side" that occurs with exercise in normal persons remain obscure. A number of mechanisms, such as splenic and liver congestion, visceral distention and pull on the suspensory ligaments of the abdominal viscera have been considered. The author made observations over a period of several years on different groups of persons subject to this pain. These included various groups of athletes, personal friends and patients. One hundred and fourteen attacks of side ache were observed in 55 different persons. There were 44 males and 11 females. All subjects were normal as far as is known. The right or left upper quadrant of the abdomen was the usual site of the pain. In the relatively few instances where the pain was not located in either of these two areas, the pain was located in various areas of the abdomen and chest, including the precordium. The site of pain was often not constant in the same person on different occasions; this was true, even though the type of exertion was the same. Thirteen of the group had pain only with one type of exertion. Shoulder pain was never observed. The character of the pain was variable being described by different people as sharp, dull, constricting and sometimes cramp-like or gnawing. The pain usually lasted only a few minutes, although occasionally it lasted up to twenty minutes. Tenderness was noted in the region of pain in 8 instances. Physical exertion of some kind was always the chief precipitating factor. Simple twisting or bending of the body alone was never observed to cause this pain. The necessary type of exercise varied from walking to strenuous running. Other forms of exertion which produced the symptom were horseback riding, swimming, boxing, wrestling, skiing, squash and basketball. It was a general impression that the amount of exercise required to produce the pain in an individual seemed to be relatively constant. Mild exercise produced a side-ache usually only after a meal. In 4 of the 11 women, pain was more likely to occur at the time of menstruation. There was no apparent correlation between the severity or type of exertion and the location or character of the pain. In some athletes, no matter how excellently trained, the pain continued to appear. Exertion in cold weather appeared to bring on the "stitch" in some athletes. Deep breathing increased the pain in 25 instances, had no effect in 33 and gave relief in 3. The factors giving relief in the order of their frequency were bending over, pressure, stopping exertion, holding breath, deep breathing and loosening the belt. Any explanation of the mechanism of stitch-pain must take into consideration the outstanding features of this symptom, namely, relation to exertion, tendency to occur after eating, variable location even in the same person and the relief obtained from bending or pressure. The persons observed were of all constitutional types and explanations of stitch-pain based on certain constitutional peculiarities would seem to be untenable. Anoxaemia of the diaphragm would explain all the factors concerned in the production and relief of this pain. Anatomically, the pain would be distributed through the pleura and peritoneum which cover the diaphragm. The increase of pain on deep breathing, and the relief from bending over or pressure which limits diaphragmatic motion would fit in with this theory. It has also been observed that strenuous and prolonged laughter which is accompanied by rapid contractions of the diaphragm may result in typical stitch pain. It is not clear why the pain is generally unilateral although it may be that the exertion is usually stopped before pain can appear on the other side.—*Cause of the So-called Side Ache that Occurs in Normal Persons, R. B. Capps, Arch. Int. Med., July, 1941, 68: 94.*—(*H. R. N.*)

Slipping Rib Cartilage.—The diagnosis of slipping rib cartilage is made from the complaint of pain in the rib border and the demonstration digitally of an abnormally movable rib cartilage with associated click and pain. The entity is often trivial but at times may be quite irksome and because of the close association of the intercostal nerves with the sympathetic

system the pain produced may suggest intra-abdominal or intrathoracic lesions. Trauma, direct or indirect, supposedly forms the aetiological background. The points involved are usually the anterior ends of the eighth, ninth and tenth rib cartilages and their interchondral articulations. In the persistent cases removal of the loose cartilage should be performed.—*A Study of the Slipping-Rib-Cartilage Syndrome, J. F. Holmes, New England J. Med., May, 1941, 224: 928.*—(*S. T.*)

Intracutaneous Veins in Human Chest.—Many theories have been advanced by old authorities as to the existence of small intracutaneous veins in the human chest. In order to investigate these veins 385 patients were examined. While they represented miscellaneous clinical material, in the main they were unselected and the group intentionally included many instances of pulmonary and cardiac disease in view of the alleged relationship supposed to exist between these conditions and the appearance of veins. A special endeavor was also made to include patients hospitalized for disorders unrelated to the circulatory system, such as duodenal ulcers, diabetes insipidus, enteritis, and so on. Both sexes were represented and the range of ages varied from fourteen to seventy-three years. Veins were recorded in 261 or 67.7 per cent of 385 patients examined. The incidence of occurrence increased definitely among older subjects. Among 29 patients below the age of twenty veins were present in 14 or 48.2 per cent, while they were noted in 46 of 60 people of sixty years or more, 76.6 per cent. These veins were present in only 28 of 54 patients with pulmonary disease such as tuberculosis, emphysema, bronchitis. Accordingly no evidence was secured to indicate more frequent occurrence in these conditions nor were they more extensive when present. Among 94 decompensated cardiac patients examined (coronary sclerosis, rheumatic heart disease, syphilitic aortitis, hypertension) the veins were detected in 66 or 70.2 per cent and were absent in 28. The conclusion is that the appearance of these veins is not the result of pulmonary, pleural or cardiac disease. They are found in healthy people and their incidence increases with age.—*The Clinical Importance of Small Intracutaneous Veins in the Human Chest, J. B. Burrett & D. Scherf, Am. J. M. Sc., March, 1941, 328: 399.*—(*G. F. M.*)

Complications of Oesophageal Stenosis.—Thirty cases of oesophageal stenosis form the basis of this study. Each of these patients had obstruction of some part of the oesophagus. Thirteen cases had involvement of the upper third, and in this group the most common complaint was difficulty in swallowing, but cough and hoarseness were also observed. By fluoroscopic examination after the ingestion of a barium meal, aspiration of the barium could be seen in 9 of the 13 cases. Barium could be seen to descend to the point of obstruction and then fill the proximal dilated portion of the oesophagus. Coughing usually occurred and the barium could be seen to spill into the tracheobronchial tree. In each of these 9 cases oesophagoscopy showed the pathological process to be near the cricopharyngeus. In 2 other cases barium entered the tracheobronchial tree through a tracheo-oesophageal fistula. The condition of the vocal cords was noted in 12 of the 13 cases; in 11 of the 12 there was paralysis of one or both vocal cords. In every case in which aspiration could be demonstrated roentgenological examination of the chest showed bronchopneumonia which became more intense as the disease progressed. Clubbing of the fingers was found in one-third of the cases and in all but one of these, aspiration could be demonstrated. Twelve of the 13 patients died of aspiration bronchopneumonia. In 17 of the cases the oesophageal lesions were in the lower two-thirds of the oesophagus and in only 2 of these could aspiration of the barium meal into the trachea be demonstrated. In this group of 17 patients the vocal cords apparently functioned normally and pulmonary complications could be found in only 2. Clubbed fingers were present in 3 of these patients with lower oesophageal lesions and in only 2 was bronchopneumonia demonstrated at autopsy. Pathological lesions of the upper third of the esophagus have several common features: (*1*) the disease is located at or near the uppermost portion of the oesophagus; (*2*) there is paralysis or weakness of one or both vocal cords; (*3*)

there is marked dysphagia; (*4*) aspiration of ingested material into the tracheobronchial tree may be demonstrated; (*5*) pulmonary complications due to aspiration are frequently found and (*5*) clubbed fingers occur in most of such cases. Although the oesophageal lesions in this study were almost all neoplastic, it is apparent that other lesions that cause similar anatomical or physiological dysfunction will produce similar complications.—*A Syndrome of Upper Esophageal Stenosis, M. R. Camiel & L. Loewe, Ann. Int. Med., July, 1941, 15: 63.—(A. A. E.)*

Roentgenographic Evidence in Chest of Injury to Abdominal Viscera.—In a number of cases of traumatic injury to the abdomen ending fatally because of rupture of liver, spleen, kidney or abdominal aorta, roentgenograms of the chest have disclosed horizontal streaks at both bases. These are believed to be small areas of compression atelectasis. The writer's last case survived the injury. Haematuria was present. Roentgen examination of the chest showed the horizontal streaking at the bases and elevation of the diaphragms. Roentgen examination of the abdomen and intravenous urography indicated injury to the right kidney. An operation was not performed because of clinical improvement. Roentgen appearance of the chest subsequently showed disappearance of the streaks at the bases and of the elevation of the diaphragms. After five weeks the patient left the hospital apparently cured.—*Roentgenographic Evidence in the Chest of Injury to Abdominal Viscera, W. Snow, Am. J. Roentgenol., February, 1941, 45: 227.—(W. H. M.)*

Amyloidosis.—One hundred and twenty-seven cases of amyloidosis found at postmortem examination have been studied clinically and post-mortem. The greatest number of these cases occurred in patients with pulmonary tuberculosis with cavitation. The incidence is very much greater among patients with suppurative tuberculous lesions, such as empyema or tuberculosis of the bones or kidneys. Amyloidosis most frequently affects the spleen, liver and kidneys; 75 per cent of 135 cases had amyloid in each of these organs. The clinical symptoms of amyloidosis are largely those of the underlying disease. Enlargement of the liver was noted in two-thirds of the patients. Dependent oedema was found in 52 and the blood pressure was low or normal in 90 per cent of the patients. Proteinuria is a characteristic urinary finding in renal amyloidosis and this was found in 56 of 58 patients in whom amyloid was subsequently found in the kidneys. The congo-red test was found to be a satisfactory confirmatory laboratory procedure. There were 40 patients who at some time before death had complete absorption of congo-red solution from the blood stream in one hour. In 35 of this number amyloid deposits were found in the spleen, liver and kidneys. Complete absorption of the injected dye most commonly indicates amyloidosis and false reactions are of rare occurrence. The diagnostic features of amyloidosis are the presence of an aetiological disease, a palpable liver and spleen, normal or low blood pressure, normal eye grounds, marked proteinurea, hyaline and granular casts in the urine, and a 90 to 100 per cent absorption of congo-red solution injected intravenously.—*Amyloidosis, A. W. Pearlman, Quart. Bull. Sea View Hosp., April, 1941, 6: 295.—(A. A. E.)*

Tuberculosis in Calf.—A report is given of the pathogenesis of experimental tuberculosis in the calf. The study comprised a series of 24 animals from a tuberculosis-free herd, given, when seven days old, an infective dose in the form of either naturally contaminated milk or virulent cultures of bovine tubercle bacilli. The infection was induced by various routes: ordinary and test-bucket, stomach tube, directly into the duodenum and intratracheally. The course of the infection was studied at autopsy, supplemented by histological examination and guinea pig inoculation. It was found that when young calves are given contaminated milk by ordinary or test-bucket route, it would appear that the throat and lungs are most readily infected; the intestines and mesenteric nodes are involved only with large doses, or not at all, due in part to the bactericidal effect of the stomach contents. Primary infection of the lungs in such calves is due to aspiration and

this cannot be prevented by the use of a stomach tube because of the risk of regurgitation or rumination. The only effective method of limiting the portal of entry to the intestine is the introduction of the bacilli directly into its lumen. Much of the earlier work is of little value because of the failure to observe these precautions and this has led some to assume the passage through the intestine of tubercle bacilli without leaving visible lesions until they reached the lung. In such experiments, the authors believe, the lung lesions have almost certainly been primary.—*The Pathogenesis of Tuberculosis in the Calf, E. G. White & F. C. Minett, Brit. J. Tuberc., April, 1941, 35: 69.*—(*E. H. R.*)

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